

REMARKS

Summary of Office Action

Claims 1-8, and 12-17 stand rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Okamoto et al. (US Pat. 6,281,952) in view of Zhang et al. (US Pat. 6,396,470), and in further view of Kobashi (US pat. 6,839,107).

Claims 9 and 18 stand rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Okamoto et al. (US Pat. 6,281,952) in view of Zhang et al. (US Pat. 6,396,470), and in view of Kobashi (US pat. 6,839,107), and in further in view of Nishida et al. (US Pubs. 2002/0159016).

Claim 21 stands withdrawn from consideration as being directed to a non-elected invention.

Summary of Amendment

Claims 1 and 12 have been amended, and claims 10, 11, 19-21 stand withdrawn. Accordingly, claims 1-21 are pending in this application. Applicants respectfully request entry of the amendment.

All Claims Comply with 35 U.S.C. §103(a)

Claims 1-8, and 12-17 stand rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Okamoto et al. (US Pat. 6,281,952) in view of Zhang et al. (US Pat. 6,396,470), and in further view of Kobashi (US pat. 6,839,107), and claims 9 and 18 stand rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Okamoto et al. (US Pat. 6,281,952) in view of Zhang et al. (US Pat. 6,396,470), and in view of Kobashi (US pat.

6,839,107), and in further in view of Nishida et al. (US Pubs. 2002/0159016). Applicants respectfully assert that none of the art of record, taken individually or in combination, teach the invention as claimed and therefore traverse the rejections as follows.

Independent claim 1, as amended, recites in part “a plurality of uneven patterns consisting of a first organic material layer within the reflective portion, the uneven patterns partially covering the substrate.” Similarly, independent claim 12, as amended, recites in part, a step of “forming a plurality of uneven patterns consisting of a first organic material layer within the reflective portion...the uneven patterns partially covering the substrate.”

In contrast, the primary reference Okamoto et al. discloses that the organic material layer 25 in the reflective portion 9 *fully covers* the substrate. The “uneven patterns” are only formed on the surface of organic material layer 25. Therefore, the uneven patterns do not *partially cover the substrate* as claimed in both independent claims 1 and 12. The Office Action acknowledges this deficiency and relies on newly cited reference Kobashi to provide the missing feature. However, Applicants respectfully assert that Okamoto et al. and Kobashi are not combinable in the manner asserted by the Office Action.

As stated in MPEP §2143.01, “If proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion no motivation to make the proposed modification,” citing to *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984). Primary reference Okamoto et al. is directed to a transreflective LCD device. In particular, the transreflective pixel in Okamoto et al. as shown in Figure 24 and relied upon for rejecting independent claims 1 and 12, shows that the TFT (i.e., thin film

transistor) is formed under the reflective display section 9 of the pixel (i.e., element 21). As explained in column 70, lines 13-19:

The reason why the liquid crystal display of the present embodiment can attain high light utilization is because the light blocking components, such as TFT elements 21, lines 23 and 24, storage capacitor 26, and storage capacitor line 27, are provided to the reflection display section 9, and thus these components do not cause any loss of light used for the liquid crystal display (emphasis added).

In another words, the primary benefit (i.e., increased light utilization) of the pixel structure as disclosed in Okamoto et al. is the formation of the TFT and its components under the reflective layer 19 to reduce light blocking elements from the pixel. To achieve this benefit, Okamoto et al. discloses that the TFT is formed *directly under the uneven patterns* as shown in Figure 24.

Kobashi teaches a transreflective LCD having pixels that have uneven patterns formed under reflective layer 8a. However, Kobashi teaches that the TFT is formed *adjacent* to the reflective portion. This is because the uneven patterns of Kobashi are formed by multiple layers created during formation process of the TFT element. (See cols. 13-14.) Kobashi explicitly teaches that the “irregular pattern 8g (irregularity-forming thin-films 11g, 2g, 3g, 4g, 6g, and 5g) can be easily formed in the area at which the TFT 30 is *not* formed.” (Col. 15, lns. 63-65.) In another words, the uneven patterns 8g (irregularity-forming thin-films 11g, 2g, 3g, 4g, 6g, and 5g) *cannot be formed on top of the TFT* as shown in Okamoto et al. if modified by Kobashi as asserted in the Office Action.

Okamoto et al. teaches that 45% of the pixel area is transmissive while only 38% is used for the reflection display. (Col. 69, ln. 67 – col. 70, ln. 2.) In another words, the reflective

portions of the pixel are very narrow, as shown in Figures 23(a),(b), to achieve the high light utilization feature. The narrow reflective portions are attainable because the uneven patterns are formed on the surface of the organic layer 25 and the TFT formed directly under them. Forming the uneven patterns 8g as taught in Kobashi in Okamoto et al. would increase the size of the reflective portions as the uneven patterns would have to be formed *adjacent* to the TFT, which in turn would reduce the transmissive portions of Okamoto et al.'s pixel, thereby destroying the very purpose of Okamoto et al.'s invention. Accordingly, applicants respectfully submit that Okamoto et al. and Kobashi cannot be combined as asserted in the Office Action since it would not have been obvious to one of ordinary skill in the art to apply a technique of the secondary reference (i.e., Kobashi) that would frustrate the intended purpose and benefit of the primary reference (i.e., Okamoto et al.).

For purposes of argument only, even if the two teachings of Okamoto et al. and Kobashi were assumed to be combinable, Applicants further assert that the combination still does not teach all the features of the claimed invention. Kobashi teaches that the uneven patterns are formed by layers left over during the formation of the TFT (i.e., 11g, 2g, 3g, 4g, 6g, and 5g). In contrast, claims 1 and 12 recite, in part, "a plurality of uneven patterns *consisting of a first organic material layer* ... the uneven patterns partially covering the substrate." (Emphasis added.) Neither reference teaches such a feature. Okamoto et al. teaches that the first organic material layer has uneven patterns only on its surface. Kobashi teaches that the uneven patterns are formed from multiple layers of insulating and conductive materials used for forming the TFT element. Neither reference, taken individually or in combination, teach "a plurality of uneven

patterns consisting of a first organic material layer ...each of the uneven patterns partially covering the substrate” as recited in claim 1 and 12.

As to Zhang, Applicants respectfully assert that this reference is inapposite to the claimed invention. The Office Action states that Zhang discloses “an LCD device having a second organic material layer (fig. 20, ref. 181) on the first organic material layer (fig. 20, ref. 1061c) having an open portion at the transmissive portion.” Applicants respectfully assert that this is a mischaracterization of Zhang. Figure 20 does not teach a second material layer on a first organic material layer *having an open portion at the transmissive portion* because Figure 20 is directed to a “reflection type liquid crystal display apparatus.” (See col. 21, ln. 44.) As such, the asserted first organic material layer 1061c cannot possibly have “an open portion at the transmissive portion” as asserted in the Office Action because reflective type LCDs do not have “transmissive” portions. Accordingly, the rejection is confusing as it is not clear exactly what Zhang contributes to the combination of Okamoto et al. and Kobashi. As best understood, it appears Zhang was relied upon to teach a second organic layer formed on a first organic layer. However, this teaching does not cure the deficiencies of Okamoto et al. and Kobashi as explained above. Moreover, Applicants respectfully assert that it would not have been obvious for one of ordinary skill in the art to combine these three references together as Zhang, being directed to a reflective type LCD, is inapposite to Okamoto et al. and Kobashi, both of which are directed to transreflective type LCDs.

Accordingly, Applicants respectfully asserts that these three references are neither combinable nor would have been obvious to combine them. For purposes of argument, even if

combinable, the combination still fails to teach all the recited features of at least independent claims 1 and 12 for the reasons stated above. Therefore, Applicants assert that the Office Action fails to present a prima facie case of obviousness as none of the references, taken individually or in combination, teaches the claimed invention. Hence, Applicants respectfully request that the rejections be withdrawn.

As to dependent claims 2-9 and 13-18, Applicants respectfully assert that none of the references of record, taken individually or in combination, teach the claimed features as these claims depend either directly or indirectly from corresponding independent claims 1 and 12. Further, as to claims 9 and 18 specifically, Applicants assert that Nishida does not cure the deficiencies of Okamoto et al., Zhang, and Kobashi as discussed above as Nishida was only relied upon to teach the features of contact holes and pads. Accordingly, Applicants respectfully requests that the rejections to claims 2-9 and 13-18 be withdrawn.

CONCLUSION

In view of the foregoing, Applicants respectfully request reconsideration and timely allowance of the pending claims. Should the Examiner feel that there are any issues outstanding after consideration of the response, the Examiner is invited to contact the Applicants' undersigned representative to expedite prosecution.

If there are any other fees due in connection with the filing of this response, please charge the fees to our Deposit Account No. 50-0310. If a fee is required for an extension of time

under 37 C.F.R. 1.136 not accounted for above, such an extension is requested and the fee should also be charged to our Deposit Account.

Respectfully submitted,

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